EFFICACY OF DVC CANALS IN LOWER DAMODAR FLOODPLAIN, WEST BENGAL

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Background of the Study:

The lower valley of river Damodar was subject to floods of varying intensity during monsoon from time immemorial. Due to its devastating flood the river is called 'The Sorrow of Bengal'. Now-a-days mainly in developing countries scarcity of water resource has become a burning issue. Thus, water management came to light for controlling the river flows and making use of surface water in a sustainable way through various engineering structures.

Damodar Valley Corporation, constituted on 7th July 1948, involves compact, unified multipurpose river basin development programmes, viz., controlling flood, promoting irrigation, improving water supply and drainage, generating electric power, facilitating navigation, encouraging afforestation, soil conservation and promoting the growth of agriculture, industry, and tourism in the area.

The Problem:

- What are the broad issues, debates, arguments and counter arguments regarding the efficacy of canals?
- What are the adjustments of that agro-dependent inhabitants and farmers have to make?
- What types of change have occurred in agricultural production and agricultural land use pattern following introduction of canals?

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- What are the advantages and disadvantages of macro and micro level canal irrigation in response to their economic stability?
- What are the attitudes of farming and non-farming community of the society regarding the present condition of micro level canal irrigation?

The Study Area:

The study area extends roughly from 22°13' N to 23°40' N and from 86°46' E to 88°05' E. The area lies under the districts of Purulia, Bankura, Barddhaman, Hooghly, and Howrah of West Bengal. The length of lower Damodar which begins from Panchet and Mithon reservoirs to the confluence with the Hooghly River at Falta is approximately 250.15km. The study area extends from Banka nala in the left bank to the water divide between Dwarakeswar and Damodar in the right bank of Damodar.The area comes under the police stations of Saltora of the Purulia district; Mejhia, Barjora, Sonamukhi, Patrasair, Indus of the Bankura district; Galsi, Khandaghosh, Barddhaman, Memari, Jamalpur of the Barddhaman district; Tarakeswar, Jangipara, Dhaniakhali and Pursurah of the Hooghly district; and Udainarayanpur, Amta, Bagnan, Uluberia and Shampur of the Howrah district. Finally the area is part of agriculturally prosperous Barddhaman-Hoogly plains. The factors behind the selection are as follows—i. Several phases of drainage regulation have been carried out in the selected study

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area foremost being the zamindari embankment of 1863 and DVC in 1956. ii. With the advent of Damodar Valley Corporation (DVC), cropping pattern has changed and HYV seeds have become popular which is entirely dependent on irrigation. iii. Despite the laying of irrigation canals by Damodar Valley Corporation for temporal regulation of river flow deep tube wells have taken over the agricultural lands.

Objectives of the Study:

- To examine the benefits and encumbrance of canals at initial phase to present situation.
- To study the change in agricultural production and land use pattern in canal fed area and non canal fed area
- To find out the impacts of perennial and non perennial canals in agricultural and socio-economic growth
- To determine the importance of canal irrigation and its advantages and disadvantages comparing the canal fed and non canal fed areas

Hypothesis:

River control measures and associated canal networks are regarded as inherently positive as far as agricultural activities and geo ecology is concerned. The study aims to test this hypothesis.

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Database:

- Previous authentic literatures
- Published and unpublished Govt. data, official records
- Topographical maps published by Survey of India, mouza maps
- Landsat Satellite Imagerics
- Google Earth
- SRTM data
- Rural Household Survey

Methodology:

- Present irrigational system, land use pattern, socio-economic condition will be studied through field survey method in selected parts of lower Damodar floodplain.
- Data related to irrigation, agricultural production, demographic characteristics will be collected from various secondary sources.
- Case study design will mainly be used to identify the present surface water management pattern.
- It is being designed to find out from a cross-section of various income group's opinion as well as detail information about their socio economic condition, social status, irrigation and land use perception with the help of interview schedule.

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- Inductive measures will be used for analyzing the quantitative data statistically (e.g. measures of central tendency and dispersion, correlation, test of significance etc.).Software like Map Info, Arc Info, Arc GIS, Arc View, ERDAS Imagine, Geomatica, Microsoft Office Excel, Microsoft Office Word will be used for digital mapping, data processing and preparing the report.

Proposed Chapterisation :

- Chapter: 1 Introduction
- Chapter: 2 Canal Irrigation in Lower Damodar Floodplain: A Brief History
- Chapter: 3 Canal Irrigation and Agricultural Efficiency-------Change------- in production, agricultural land use pattern
- Chapter: 4 Efficacy of canals and agro-economic growth in Lower Damodar Floodplain
- Chapter: 5 Canals and its adverse effects in long term irrigation
- Chapter: 6 Summary, Conclusion & Recommendations

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